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Comments on

The Food Safety Initiative Strategic Plan

(Docket No. OPP-00550)

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Food Suppliers and Retailers Should be Required to Incorporate Time-Temperature Integrators into HACCP Plans

Food safety commands the attention of suppliers, retailers, and consumers. Suppliers stress their conformance to GMP and SSP guidelines and seem committed to a policy of "we're covering our base" when it comes to the overall problem. Retailers as a group have shown little initiative to install measures for food protection, and are often most concerned about the cost factors. Both will point to effective measures to ensure sanitary operating procedures, but neither seems willing to tackle the biggest problem area: time-temperature management along the cold chain.

Time-temperature management is the single most significant problem in food protection. Epidemiological and survey data confirm this. Outbreak statistics and survey data of every single type of food borne illness all show very strong seasonal dependence. Food borne illness is extremely rare in those months of the year where the possibility of temperature abuse of shipments and in handling of containers is reduced due to low environmental temperatures.

Statistics, which point to the temperature dependence of all food borne illness, are recognized by all food safety authorities, yet misinformation tends to suppress this vital observation.

"Experts" repeat the assertion that temperature management does not affect

low- temperature-adapted species like *Listeria monocytogenes*. This is patently false; all species of food borne microbes show temperature dependence in their growth characteristics.

"Experts" assert that *E. coli* 0157H7 really is just like a chemical contaminant, yet this species variant (like all coliforms) shows very strong seasonality in its statistics, and is known to grow rapidly in food at temperatures as low as 7! C (44.5!F). The fact that relatively small quantities of this bacterial strain have been anecdotally associated with illness does not constitute an argument that time-temperature management will not reduce the threat of food borne illness from this source.

It is a fact that improved time-temperature management can achieve substantial reduction of food borne illness. Sanitation can never be pushed to the level of pathogen elimination. Temperature abuse can always overcome the lower initial concentrations of pathogens that might be achieved through sanitation.

Technology to enforce effective time-temperature management in the distribution scheme is now available, documented, and extremely cost effective. Package-borne time-temperature-integrating labels (TTIs) placed on packages of "food at risk" are the best answer. Indicating dots on these labels can warn of temperature abuse and enforce their removal from distribution. There is no more effective way to eliminate temperature problems.

Consumers, who vote with purchasing dollars, have indicated that an increase of food protection is something they are willing to pay for, but that resolve will not easily result in action. Processors and retailers have no pressure to reach outside of their own domain to police the cold chain.

HACCP should, theoretically, create the preconditions to cold chain monitoring, since there is the possibility of control at critical points defined by the responses of package-borne time-temperature indicators. According to the dictums of the HACCP approach, if there is information and the possibility of control, a critical control point can be defined.

But HACCP is a technology-independent system. As long as the means by which HACCP is achieved are not defined, the path of least resistance will ensure that the available and appropriate technology will not be used. TTIs are generally unfamiliar to both processor and retailer, and there are fears of cost and unresolved issues of cooperation between vendor and purchaser. This will not solve itself, but rather requires technology specific regulation.

In summary, food suppliers and retailers should be required to incorporate time-temperature integrators into HACCP plans.

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